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ABSTRACT

This research paper describes how E-Mail and Vax Notes were used in the Spring 1994 political science classes, "Contemporary Global Issues" and "Women and Politics," involving 80 students at the University of Wisconsin--La Crosse. By modeling and hands-on practice, students were introduced to the electronic mail and then given three major projects to complete; the projects are described. Data are analyzed in task-oriented responses or communications-oriented responses to questions related to the projects and their completion. Task-oriented responses viewed the electronic mail as a tool to complete the projects required and would have done more had they been asked. Communications-oriented responses viewed the electronic mail as a way to correspond easily and cheaply with the instructor, with other students on the projects, and with friends and relatives in and out of the institution who had electronic mail addresses. The conclusion identifies advantages and disadvantages of the use of this teaching technique. Contains 47 references. (EH)

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PROMOTING STUDENT INTERACTIONS: ELECTRONIC CONFERENCING

by

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Isolated computers are useful. Connected computers are more useful and in new ways.[1]

INTRODUCTION

The ability of computers to allow users to communicate with each other has been termed *computer mediated communication (CMC)*. There are many systems that implement such a service which allows for one-to-many or many-to-many discussions usually termed *computer conferencing* (Quarterman, p.4). This is different from the one-to-one correspondence that takes place using an electronic mail system, although with the use of distribution lists one-to-many communication can be still be undertaken using electronic mail. However, a conference file is generally readable and writable by all those participating in the conference.

There are many e-mail programs and conferencing systems available in the market today, most of them tied to the computer system in place in an institution. The choice of e-mail and conferencing programs will depend on several factors including price, availability, user-friendliness, and disk space usage. Of course faculty very often will have little input in the kinds of systems that their institutions install and will likely use a product "because it's there." However, the ability to embark on the use of such utilities in the classroom will depend on other factors including the kind of support available for the use of the system, the documentation available allowing for ease of use and the incentives and encouragement given to the innovative use of technology in the evaluation and assessment of faculty performance which may have an impact in merit, promotion and tenure decisions. For the purposes of this paper it may be noted that VMS MAIL and VAX NOTES are the systems which will be under discussion. However, it should also be understood that the advantages, disadvantages and remarks made here have applicability to any system that may be in place in any institution.

WHY THE USE OF TECHNOLOGY IN THE CLASSROOM?

During this age of information, one's ability to adapt is determined by one's ability to learn new things. We live in an information age. Those who possess information possess power - the power to convince, to persuade, to have their agenda heard. As information becomes more valuable, students who want to make themselves marketable in the workplace will need to realize the value of information and know how to access them.

The use of e-mail and conferencing systems finds utility in the individual, institutional, national and global levels. More and more uses are being found for the ability to communicate quickly and openly in schools, businesses, government, between and among nations.

On the individual level, using such facilities can have many advantages and uses. The possibilities for the realization of the "virtual classroom" where increased interaction between students

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[1] John Quarterman, The Matrix: Computer Networks and Conferencing Systems Worldwide (Digital Press, 1990), p. 3.

and teachers and between and among students takes place are enormous. It promotes teacher-to-students, students-to-teacher and students-to-students interaction.

This allows students easier access to the instructor in effect providing individualized attention. It also has the capability of augmenting classroom instruction and can improve the quality of classroom discussion especially for classes that meet only a few times a week and for short periods of time. It is ideal for classes that involve a great deal of discussion and information exchange. It increases the class time available for lecture and discussion without the students knowing and feeling it. This may be a "less painful way of delivering education." Using e-mail and conferencing technology supports the Socratic method of instruction where students become more actively involved in the learning process rather than being passive recipients of data. When supplemented by other methods computer conferencing can promote the participation and learning of those who are communication-apprehensive learners (Arias, p.4) because it promotes discussion in relative anonymity compared to face-to-face discussion. It is also viable for reaching linguistically and culturally diverse learners as well as disadvantaged, challenged or handicapped students.

There are definite advantages to the instructor using this method as a supplement to instruction, with the proper understanding that it is a supplement to the course not the core of the course itself. Aside from facilitating group discussion and constructive criticism, it also helps alleviate or avoid chaos in the classroom when it comes to heated debates and discussions. A cathartic effect can be achieved by "taking it out on the computer." At the same time it can fulfill the educational goals of promoting writing across the curriculum and thus improves student writing, editorial, and logical skills.

E-mail and conferencing have advantages for working on a joint project when you are separated from the people you are working with by distance. Conferencing really expands on e-mail technology by allowing groups to communicate effectively regardless of time or location. On top of this advantage, conferencing may win out in terms of specific issues that can be resolved with its use. Despite the fact that you can send or distribute mail messages to many using a distribution list conferencing saves time and effort when you find yourself sending fifty-way mail messages. Also one can always participate at one's convenience. You won't miss information on those days when you are too busy to access the system. Thus it has a decided advantage if one happens to be absent from class or could not participate in the ensuing class discussion. It also allows students and their teachers to pick up where they left off in the discussion for the day, skip ahead if the material has thoroughly been covered, return to check previous information, or totally ignore information which is not of interest.

Instructors can also find that having the conferencing facility can save time and money on reproducing and distributing materials thus allowing for a greater amount of material to be distributed to students without fear of being responsible for killing too many trees. It can also be used to distribute and collect syllabi, assignments, lecture notes and outlines and exams as well as a method for soliciting comments for the class. The students begin to feel that they have a stake in learning and find ownership in what they do thus making the course more meaningful for them.

The adoption of such technology can work to subtly increase student computer literacy especially since it can be learned very easily. Assuming that students have basic typing and

wordprocessing skills a few pages of instructions to do electronic mail and a two page instruction set for VAX NOTES was all that was necessary for my students to obtain proficiency in both systems.

However, it must be understood that the instructor must have made the investment in time and effort to do some of these himself/herself instead of relying on computing center gurus for the student to go to in case of problems. Computing center personnel may not be attuned to what the instructor wants done and may be at a loss to help your students thus leading to double frustration. Likewise, the attitudes of a computer-phobic instructor rubs off on students and does not redound to the benefit of any of the parties involved.

The ability to conduct class discussions without meeting the instructor face to face has implications for making viable the alternative for off-campus and distance education for those whose schedules do not permit the regularity of classroom instruction attendance and those who live at distances that discourage pursuit of a college education.

Thus the ability to make use of the computer to communicate can reduce isolation, improve collaboration, and enhance scholarly activities. Then we can get used to the idea of sharing resources rather than the plain acquisition of resources.

On the institutional level, timely exchange of information can lead to appropriate decisionmaking. Students, faculty, staff, and administration can benefit from the use of email and conferencing to make everyone in the institution feel part of the distribution network of information, thus making for constituents that feel they have a stake in the process.

Communities are formed out of networks. This leads to people meeting who would not otherwise have encountered each other at all. Various activities that are promoted by the availability of conferencing systems include the collection and coordination of information, transfer and exchange of valuable data and information, the collaboration of writing, research and review.

On the national and global levels the information revolution has allowed for important political and economic decisions to be made with the help of computers thus having implications for how we conduct war, make peace and undertake international power relations.

One's location, gender, and character seem to bear little relation to a person's identity over the net and to one's ability to make a contribution in the discussions that take place. Thus computer conferencing and networking is moving toward becoming the "great equalizer" and as access to computing technology through the "information superhighway" becomes more and more prevalent it may well be on its way to being so.

THE SCENARIO

Through the years of teaching Political Science I have learned that easing technology into the classroom has proven to give the best results for both students and teacher. Ramming the virtues of computing down the students' throats does not produce the best results - students resent what they feel is not essential to the nature of the study of politics and faculty end up with feelings of frustration about a generation of students that is lazy to learn what they need to become competitive in the marketplace.

Gone are the days of trying to implement an idealized "paperless" classroom via the computer. It has now become a matter of making assumptions about the type of student skills and the type of activities that will appeal to them. I make the implicit assumption that my students have typing skills and basic computing skills (wordprocessing, spreadsheets, databases) which may be flawed but which gets students to learning them quickly or bail out of the class. I have chosen the use of electronic mail and the Internet as a way of sustaining student interest in the world of computing that has direct relevance to their study of politics (see Manrique, 1990,1991,1992,1993,1994).

During the Spring semester of 1994 as a result of grant funding and encouragement by colleagues who were interested in using conferencing in the classroom, I had decided to embark on including the use of VAX NOTES for the general education courses Contemporary Global Issues and Women and Politics. Aside from learning about electronic mail and the Internet this new batch of students would come out with the additional skill of knowing how to "conference" via the computer. Thus, newer students I believe derive more and more benefit from what I am able to incorporate into the classroom.

This paper is an attempt to discuss and describe the implementation of these two systems - electronic mail and computer conferencing in Political Science courses at the University of Wisconsin - La Crosse. I have been using electronic mail in courses for the past three years but the use of conferencing was only introduced this semester. I have used electronic mail in the following courses: American National Government, Contemporary Global Issues, Comparative Political Systems, Women and Politics, Asian Government and Politics, African Government and Politics, and Middle Eastern Government and Politics. Computer conferencing was introduced in the Contemporary Global Issues and Women and Politics courses. So although data on electronic mail is available for a variety of courses the data to be used here is specific to the Spring semester 1994 courses in Contemporary Global Issues and Women and Politics courses where both e-mail and VAX NOTES were used.

The use of electronic mail as well as Telnet and Gopher were introduced at the beginning of the semester, usually two weeks into it when I have the students in the computer lab and go through the initial attempt at getting into the computer and sending a few messages to me and to each other. With the help of an 11 page instruction sheet students go off on their own in "netland" with a few specific tasks for them to do for me. They are then required to introduce themselves to the rest of the class and to recount what they had done over the net by describing their adventure in an e-mail message to me and their classmates. VAX NOTES was introduced to the students later in the semester, in this case when there was a little over a month left in the semester. A 2-page VAX NOTES instruction sheet was all I distributed to students hoping that their experience with electronic mail would ease them through conferencing procedures.[2] Throughout the semester projects were provided that would allow them to use the computer again. Three major projects were used in the two classes. One was the use of the Antioch College Sexual Harassment policy when we were taking a look at the status and implications of sexual harassment policies in academic institutions for the Women and Politics course. The text was on VAX NOTES and students were to read it and post

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[2] Requests for copies of the "Quick and Dirty Computing Guide for Political Science Students" which serves as an introduction to electronic mail, Telnet and Gopher as well as copies of the two-page handout on using VAX NOTES can be obtained from the author via electronic mail or "snail mail."

reactions to the class in order to spur discussion. A second project was the posting of resolutions for the Model UN simulation that my class was going to have with another class of Contemporary Global Issues. Students were to read those resolutions in order to prepare their positions with regards to the issues for the Model United Nations sessions to be held on campus that April. A third was a controversial trade liberalization project for the Global Issues class which tried to have them reach consensus in removing tariffs on products traded among them.

This paper will describe how E-Mail and Vax Notes were used in these two political science classes which had a total of 80 students. Based on an end of the semester survey[3] made up of yes-no questions and open-ended ones, the paper attempts to compile the students' reactions to the use of these two systems in their classes and to compare and contrast those differences in their receptiveness to the use of technology. Discussions will be based on aggregate data unless there are specific differences to be pointed out unique to the nature of the individual course. It should reaffirm the usefulness of the use of conferencing as discussed in the literature. In the process students should be able to provide feed back with regards to the positive aspects of the use of e-mail and VAX NOTES and determine the sources of problems. I will also attempt to map out future directions with regards to their use.

SURVEY RESULTS AND ANALYSIS

The road to improving the delivery of technology in the classroom is usually paved by the valuable feedback from users. That is why having the students vent their thoughts about the use of e-mail and conferencing is important. These are valuable as input to the next semester's handouts and strategies for teaching.

ON ELECTRONIC MAIL. Because electronic mail is what is introduced first, the initial set of questions are geared towards eliciting reactions to electronic mail. When asked if they used electronic mail again at all after the initial exercise in class at the beginning of the semester, 92.5% of the students in both classes responded positively and 7.5% responded that they did not. When asked why they did or did not use it again many reasons were given. Of course the immediate task-oriented response was because there were assignments, review questions, instructions and information that were available via electronic mail which they found to be valuable for the course. The communication-oriented response had to do with being able to correspond easily and cheaply with the instructor, with other students they were working on Model UN projects and other projects with, and with friends and relatives in and out of the institution who had electronic mail addresses. Those who did not use e-mail again had a task-oriented response which indicated that they would have done more if they had been asked to do more and communicated more if they had additional people to communicate with. Some of the reasons given for continuing to use e-mail include the following:

* I became friends with the people in my group so we wrote each other occasionally.
* I wanted to learn more about communications by computers.
* I used the Dow Jones to look up daily sporting events and other interesting facts.
* Curiosity, I wanted to see what I had since the previous time.

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[3] Copies of the survey instrument used at the end of the semester are available from the author.

* I've been using electronic mail since you introduced me in the fall of 93. This year my main use was to write back and forth with my friend studying in England. I also used it for POL 202 to talk with other classmates.
* I used it by getting connected to White House summaries which gave press briefings from the White House.
* I used it to read the Antioch Sexual Harassment policy.
* I'm grateful for the usage and instruction on how to use it.
* I find computers very fascinating and enjoyable to use. The electronic mail market is just going to keep growing and I feel that being E-Mail literate is important today.
* Because it was very helpful in getting in touch with you and other students.
* I feel that it is extremely important for our generation to keep up with the changing computer world. I like to use E-Mail (not only for this class) and believe it will benefit me (job, etc.).
* It was my first time using a computer for something other than games and I thought it was fun and interesting.
* Easy to use and FREE!
* Because I found it helpful that you left us messages pertaining to Women and Politics.
* It was a convenient way of communicating with a few people I didn't see except in class. Also, I appreciate the practice on the computer.
* I used electronic mail to send messages to some other students that had you as a professor. I didn't go out of my way, but if I was at the computer, I wrote a couple people some messages just for fun.

Those who did not do much with it gave the following comments:

* I just didn't have time to sit down at the computer and use it. I would have liked to.
* I had numerous things going on in my life, and it wasn't always convenient to get to a computer.
* I really had no reason to. However, I feel it is a beneficial tool and I will keep my manual on E-Mail for later reference. Also, I didn't have time.

Those who used the e-mail facility beyond the introduction to it were asked to describe what they used it for. The most frequent response was to communicate with the instructor and their classmates. Another frequent response was to obtain information from a listserv list. Then there were those who communicated with friends and relatives outside of the institution. Those who specified other uses indicated trying to get a hold of the White House, our Chancellor's office and places to obtain job information.

Figure 1 shows a pie chart of the frequency of use of electronic mail. Many indicate that they used it weekly, variedly, several times a week. Figure 2 shows the number of messages sent using electronic mail. The most frequent answer was between 2-5 messages although there were those who sent more than 10 messages throughout the semester.

When asked what types of topics were covered in the notes posted we had course oriented responses - papers, assignments, essays. Then there were those who exchanged comments and questions about class. Other topics covered were school plans, music, literature, frat life, parties, beer. It was also used by some to disseminate information about extra curricular activities. "I let the class know when there was a men's volleyball game."

Figure 1. ELECTRONIC MAIL
FREQUENCY OF USE

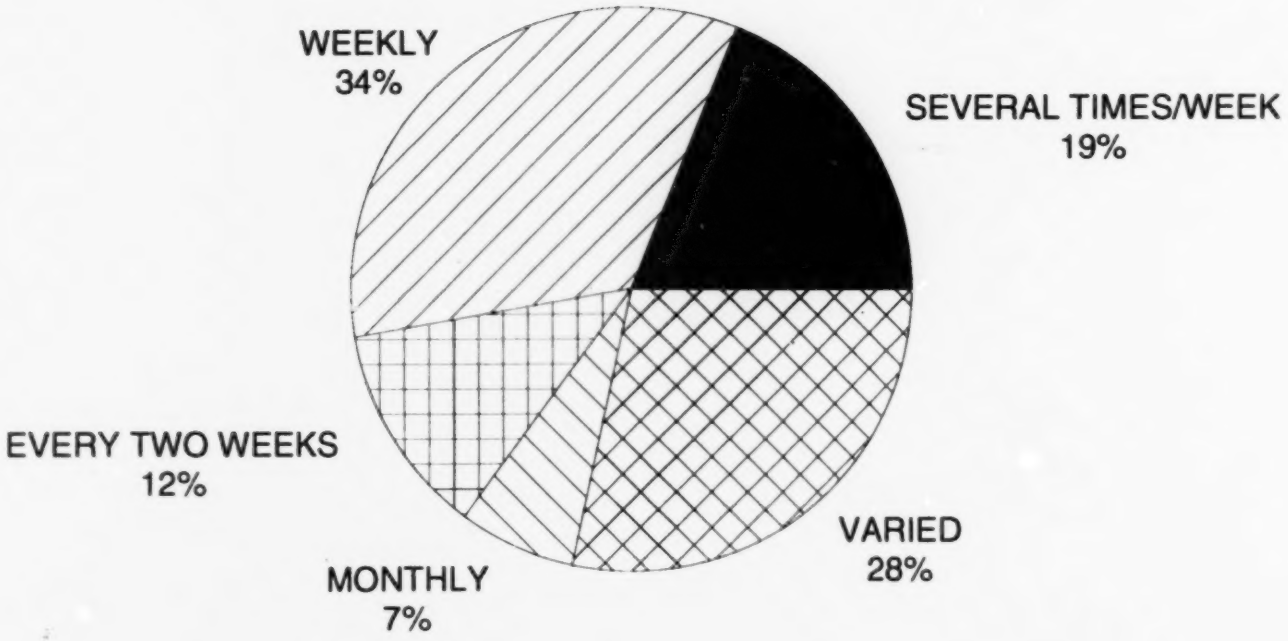
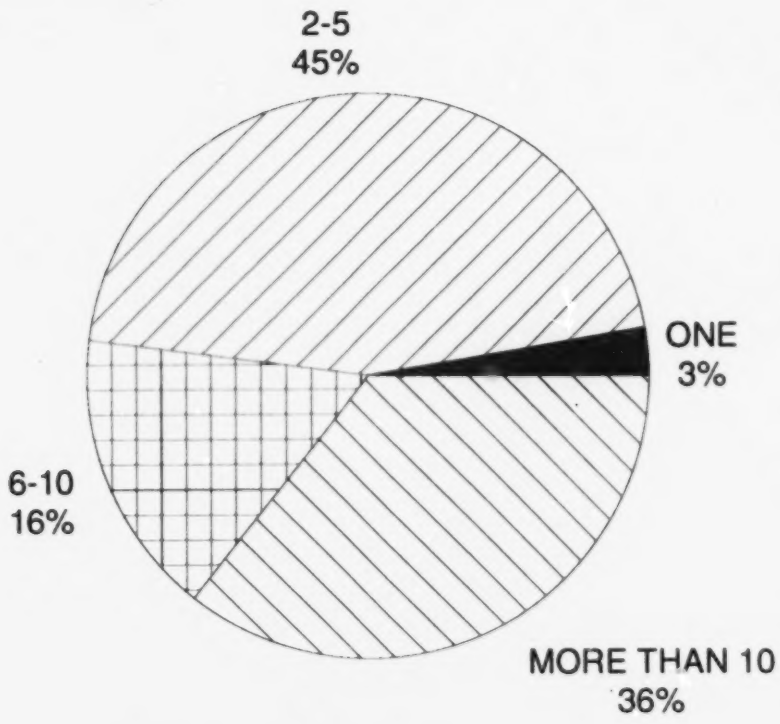


FIGURE 2. ELECTRONIC MAIL
NUMBER OF MESSAGES SENT



To the question of whether they found electronic mail to be a useful way to communicate information from the instructor to the student 94.5% said yes, 5.5% said no. Especially for the POL 202 Contemporary Global Issues class which met only once a week in the evening many student comments centered on how it was useful to send me the message because they knew I would get it, that it was easier to reach me that way than to try and catch me in person. They realized that they needed to be vigilant about reading their mail or else it piles up and they get behind in their correspondence. They had to take the initiative to work on their mail messages.

Typical comments were:

* It felt more personal than asking a question in class and more efficient than trying to set up a meeting.
* Yes, I thought it was pretty ingenious. It was especially necessary because our class only met once a week. If you needed to give us a message before our next class, it was easy to do.
* Because class was held only once a week; communication could take place outside of class.
* You could send us notes any day of the week - we didn't have to wait until Wednesday night to hear important information or about information that was not presented in class.
* I missed some classes and counted on it for information I did not get.
* Because then I didn't have to go all the way to the 4th floor.
* I believe that it saves time and paper, and also some running around is saved.
* Because you were constantly leaving us messages. I thought the one with your son was really funny.
* Materials that were not presented in class or forgotten could be checked on E-Mail. It also forces reluctant students to use E-Mail.
* It seems you are easier to reach via E-Mail than in person.
* Many times getting a hold of an instructor can be very difficult and frustrating.
* Because you could always be reached and you responded back quickly.
* I do not know if you get my notes; I always know for sure if/when you get my E-Mail messages.
* Yes I found it useful - although I don't feel it is fair to rely on this completely as some people just don't like computers.
* It is a way for students to understand computer knowledge.
* Yes, I liked it, it is environmentally efficient and gets us involved to a greater extent in the learning process.
* We were able to get information and can keep on using it, instead of the instructor telling you once and then forgetting.
* The only real problem I have is time. Not being on campus, and my time being limited when I am here checking E-Mail messages was unfortunately not a high priority.

The same percentage (94.5%) found the documentation to be useful and the same percentage who did not see electronic mail as a useful means of communication (5.5%) did not find the documentation to be helpful. Students commented that it was handy to have the instructions to look up everytime they got stuck on a task. It legitimized the things I said when they could refer to it. Many students appreciated the step by step instructions and felt that without it they would be lost. But they also realized that if they did not practice and work on it often they lost what they learned.

* Yes, the instructions were very easy to follow. I am usually very computer illiterate, but I was able to learn e-mail relatively fast.
* I would not have had a clue without it!! It was great step-by-step documentation. I had very few problems following the instructions.

Regarding ease of use 97.5% found electronic mail easy to use, while 4.3% did not think it was easy to use. When queried as to why, various responses were obtained ranging from the good step-by-step instructions to their own inability to take the time to keep on using it.

* I had to use your instruction sheet the first couple of times, but after that it was easy
* Because of the documentation you provided
* Once you know how to use it, it was easy to remember!!
* I used your guide sheet the first few times that was very helpful. After a while - I could access it by memory!
* I had learned how to use it the previous semester with you.

When asked if it should be kept part of the course 98.6% indicated yes and 1.4% indicated a negative response. To some it may be the only way some students are exposed to E-Mail and to the computer system on campus since they would not have been exposed to the use of e-mail in any other class. "Hardly any other instructors deal with it." In the Computer Literacy course they are told that its exists theoretically but are not provided with the hands-on experience to use it. If not for this class they would not have taken the initiative on their own. They know the importance of technological knowledge in the outside world. "It's something that most businesses use already. I feel we will all have to learn it sooner or later. I think more computer exposure needs to be in the classroom. Students today are ducking away from computers as much as possible, which will only hurt us in the future." They also see the value for other classes and can use the information you give them for many reasons other than this class. There are those who are cautious about wanting to make it a permanent feature of a political science class and would rather make it an option especially if they feel that what they are doing really has nothing to do with the class.

To the question would you like to keep your account I have noted a marked increase in those who have requested that their accounts be retained compared to requests in the past. Over the years the numbers have grown. Now 89.3% want to keep their accounts. Those who do not wish to keep their accounts have reasons like they are graduating and will not be using the campus computer again.

Comments were very generous when asked to determine whether it would be beneficial to use it more often in the class. There are those who are wiling to use it and want more and cannot seem to get enough. And those who would not want anymore or think that what is covered is enough. There are those who worry about access because of lack of time and the burden on our campus computers. And there are those who disagree that this should even be part of the course at all. Students caution about an overemphasis on what e-mail can do and indicate that it has to have relevance to the course to be a meaningful task for them to do.

* I thought it was used adequately but not excessively.
* If you used it more often, I think some students would've gotten mad. There is no way of knowing if there is any mail unless you log on and check and that can get time consuming.

* I believe you used E-Mail just enough to get those interested to keep on using it and those not could do it whenever. The good points were that you made it easy for us to use the service. Bad points are none.
* I would have objected from using it more. It is an easy way to get information. But, sometimes the computers were very slow. The first exercise took me 2 hours and that was mostly because of time.
* I think you should have used it more in class. Send assignments on it and expect the assignment to be turned in on E-Mail. Although it might be inconvenient, it is important.

Because the use of Telnet and Gopher are relatively new in the course one can tell that it has not gained popularity yet. I will need to work on getting them to see a purpose in learning to use those services. Thus to the question "did you use TELNET after the initial exercise in class at the beginning of the semester," 44.3% said yes and 55.6% said no. Those that used it again used it for a specific purpose like getting research done for another course or to look up library information knowing that our library is not a fountain of information. Those who did not use it again determined that there was no real need for them to use TELNET. Those that did, did so because they were curious, interested in poking around for what they can find and discovered new things in the process. Students suggested that telnet be explained a little more in detail because they realize that it is a great tool for obtaining information. They also requested that more time be spent on exploring what it has to offer.

Because our Gopher service is not Turbogopher it was still quite difficult to access information unlike the point and click methods available in other institutions. Thus only 35.7% indicated they made use of it again. The 64.4% who indicated that they did not use Gopher again said they had no real need to use it and only curiosity drove those who did spend some item in navigating the net through gopher servers.

ON VAX NOTES. The disappointing reception to VAX NOTES can be attributed to several factors. One is that it was introduced towards the end of the semester. Despite its potentials for use it was relegated as an appendage to the course and was therefore taken for granted by the students. By that time there was little compulsion to engage in innovation in the delivery of information especially when they had found a tried and tested way - email!

In discussing VAX NOTES I will try to compare the previous results of the electronic mail portion. Table 1 below summarizes those results for the five major questions in the survey.

QUESTION	VAXNOTES(%) YES	NO	E-MAIL(%) YES	NO
1. Use again	35.4	64.5	92.5	7.5
2. Useful for communication	70.3	29.6	94.5	5.5
3. Helpful documentation	70.3	29.6	94.5	5.5
4. Easy to use	88.8	11.0	95.7	4.3
5. Keep as part of class	96.5	3.4	98.6	1.4

Table 1. Comparison of Survey Responses: VAX NOTES and E-MAIL

When asked if students used VAX NOTES after the initial exercise in class 35.4% said yes and 64.5% said no. The reasons given were that some found it difficult to use, there were not really any specific use for it, and they did not find the time to learn to use it. "I wanted to just stick with E- Mail; plus I didn't have a good understanding of what it was for." In fact some of the comments could lead one to believe that students did not really see the difference between the two systems.

Those who used it though did so to find out what their classmates had to say about assignments just like comments on a trade liberalization project and on the courses that I would be teaching in the summer and fall semesters. "To get the Antioch College sexual harassment outline and also to look at your course syllabus for next year for a class I am taking you for. See you then!" "Because I wanted to see what other students views were in the class and there [sic] ideas on the test questions."

Students did not make use of VAX NOTES with any regularity as exhibited by the response to the question how often did you make use of VAX NOTES shown in Figure 3. Figure 4 shows the results of the question regarding how many messages were sent by the students using VAX NOTES. It indicates that not too many messages were exchanged using this system. A major topic covered was the trade liberalization project. Many indicated use of the system in preparation for the Model UN simulation.

In terms of the usefulness of documentation, 86.2% found it to be useful, 29.6% did not. "Had problems starting and using, though I attribute this to me not you. I didn't spend enough time with it." There were 88.8 % who found it easy to use and 11% who did not. "Too many commands to remember but once you learned it was a cinch."

To the question should VAX NOTES be kept as a part of this class in the future, 96.5% indicated a positive response, 3.4% did not. "I believe it would have been more useful if it were presented earlier in the semester along with the other computer topics." Other comments include:

* It's interesting to read other people's feedback
* I'm sure some people found it to be a useful resource.
* Another way of communicating and learning. It gave people an option.
* It creates some degree of computer literacy.
* Again, it is important for students to know these services are out there for them to use.
* I think they should be used earlier in the semester, so they can be used all semester long.
* Very helpful in the aspects of the students study habits.
* I thought it was another worthwhile method of studying.
* As I've said before we are in the computer age and students should learn all they can about them.

Once again students has interesting constructive comments to make with regards to the use of VAX NOTES:

* I like E-Mail a lot more than VAX notes, I think there is a lot more you have to do and remember for VAX notes.
* You should put all the outlines on it and make the students get it for class preparation. It will make them use the Vax Notes.

FIGURE 3. VAX NOTES
FREQUENCY OF USE

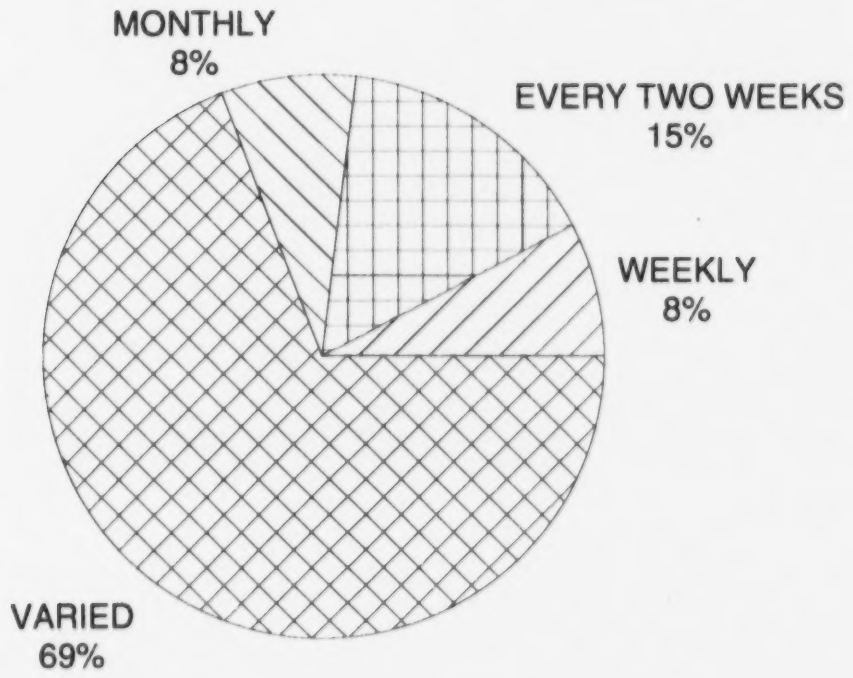
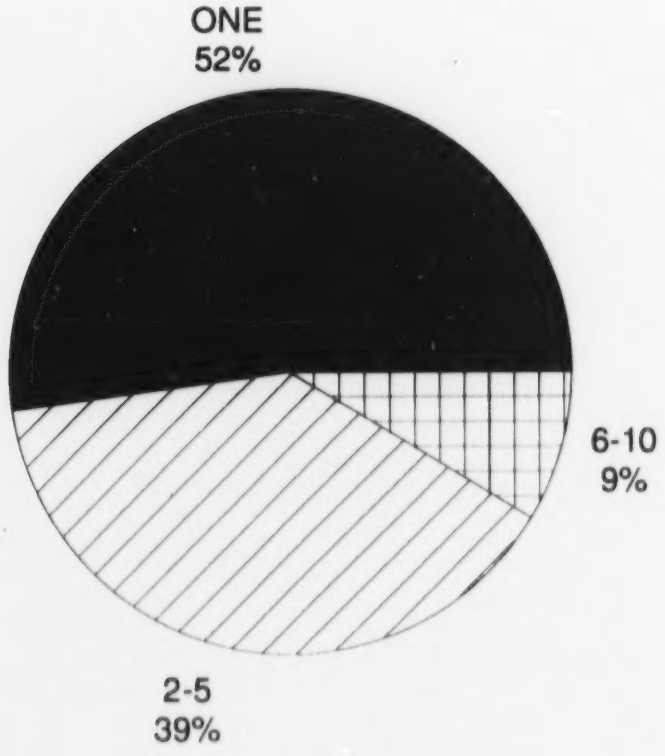


FIGURE 4. VAX NOTES
NUMBER OF MESSAGES SENT



* I think you could have used it more. Maybe you could encourage students to use it to help each other study.
* I would have liked to use Vax Notes more in class, but I know a lot of people in class would have objected to it. It can be kind of complicated for some people to use, but as you use it more you become better at it.

CONCLUSIONS.

Based on student feedback at the end of the semester survey I have determined several problems with the use of VAX NOTES. The students seem to think they can benefit from more instruction in a handout and a longer time in the computer lab. It could be introduced earlier in the semester. More exercises can be done and the students feel that they will not be imposed upon by more work. This is a stark contrast to my past attempts at introducing technology in the classroom when student evaluations emphasized their dislike for the use of technology in the political science classroom. But then again it could be a matter of technology whose time has come or in the way it is introduced to the student as part and parcel of the course and therefore painless. As students become more familiar with technology they come to look for it and wonder how they ever did without it.

I am convinced of the value of incorporating technology in the classroom, particularly technology that encourages communication and learning which e-mail and VAX NOTES seem to facilitate. The key here is to introduce it in a non-intimidating manner and in ways that will tie in closely with the subject matter at hand. I feel that in some courses I have been able to slowly devise ways for technology to gain acceptability.

The next step is to encourage use by other colleagues so that students realize that they value of what they learn go beyond my political science classroom. Some of the psychology faculty have started to do it. Faculty in the English department have expressed an interest. There are times when I believe that students I have taught serve as the best advocates of the use of technology when they ask other faculty members why they are not using such facilities in their courses or when they introduce what they learn about e-mail to their other classmates and teachers.

In general using conferencing technology posed several issues and problems. Students liked to receive and read messages but without a specific task will not post their own messages or will only do so sparingly. As I had discovered in activities past, students find that initially they have nothing to say unless you direct them with specified topics of conversation among themselves.

Of course there is the never-ending battle with access to the physical hardware, whether it be individual computers on faculty and student desktops to computer lab facilities. Students constantly are constrained by computer terminal availability especially at certain periods in the semester, i.e finals week. The hours of the computer center may also not be convenient especially for students who work full time or commute from great distances. And yes, we have not won the battle over computer literacy. Many of our students do not get any computer literacy courses and many do not care to obtain it. There can also be discomfort with written communication, even one mediated by a user-friendly software on a computer. But based on the semester's experience with e-mail and VAX NOTES the potential is there for promoting student interactions with the proper use of electronic conferencing systems.

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